What Is Claimed Is:

1. An optical isolator for transmitting light in a first direction along an optical pathway therethrough and blocking the light in a second direction along the optical pathway, and the first direction and the second direction being in opposition to one another, the optical isolator comprising:

an input polarizer and an output polarizer, the input polarizer having a first pass axis of a first given angle, the output polarizer having a second pass axis of a second given angle, the input polarizer configured to polarize the light entering into the optical pathway to a first given plane of polarization parallel to the first given angle;

a Faraday rotator material disposed between the input polarizer and the output polarizer, the Faraday rotator material having a given Verdet constant, a first end and a second end in opposition to one another, the first end and the second end disposed at a maximum linear distance across the Faraday rotator material from one another, and the first end and the

second end defining an axis therebetween defining a maximum linear length through the Faraday rotator material;

generation means for generating a magnetic field around and inside the Faraday rotator material, the generation means providing a given magnetic field strength; and

at least one reflector configured along the optical pathway from the input polarizer to the output polarizer, the at least one reflector defining a given optical length of the optical pathway through the Faraday rotator material, and the given optical length through the Faraday rotator material being longer than the maximum linear distance across the Faraday rotator material;

wherein the given length of the optical pathway through the Faraday rotator material provided by the at least one reflector, the given magnetic field strength provided by the generation means, and the Verdet constant of the Faraday rotator material are selected with respect to one another so as to rotate the light along the given length of the optical

pathway through the Faraday rotator material from the first given angle of the input polarizer to the second given angle of the output polarizer.

2. An optical isolator according to claim 1 wherein the difference between the first given angle and the second given angle is 45°.

3. An optical isolator according to claim 1 wherein the Faraday rotator material comprises magneto-optic crystal.

4. An optical isolator according to claim 3 wherein the magneto-optic crystal is Terbium Gallium Granite (TGG) crystal.

5. An optical isolator according to claim 1 wherein the light isolated by the Faraday rotator material has a wavelength of under 1000 nm.

6. An optical isolator according to claim 5 wherein the wavelength of the light is 976 nm.

7. An optical isolator according to claim 5 wherein the wavelength of the light is 980 nm.

8. An optical isolator according to claim 5 wherein the wavelength of the light is 880 nm.

9. An optical isolator according to claim 1 wherein the given optical length of the optical pathway through the Faraday rotator material is at least twice the maximum linear distance across the Faraday rotator material.

10. An optical isolator according to claim 1 wherein the generation means comprise at least one magnet.

11. An optical isolator according to claim 10 wherein the at least one magnet is round and is configured to surround at least a portion of the Faraday rotator material.

12. An optical isolator according to claim 10 wherein the at least one magnet is a pair of bar magnets disposed adjacent to and on opposing sides of the Faraday rotator material.

13. An optical isolator according to claim 10 wherein the at least one magnet is a permanent poled magnet.

14. An optical isolator according to claim 10 wherein the at least one magnet is an electromagnet.

15. An optical isolator according to claim 1 wherein the at least one reflector comprises a highly reflective coating disposed on the Faraday rotator material.

16. An optical isolator according to claim 15 wherein the highly reflective coating is disposed on a first facet and a second facet of the Faraday rotator material so as to form a multipass etalon.

17. An optical isolator according to claim 16 wherein the Faraday rotator material comprises an uncoated region on each of the first facet and the second facet, respectively, so as to allow light to enter and exit the multipass etalon.

18. An optical isolator according to claim 1 wherein the at least one reflector comprises a highly reflective mirror.

19. An optical isolator according to claim 18 wherein the highly reflective mirror is disposed adjacent to the Faraday rotator material.

20. An optical isolator according to claim 19 wherein the highly reflective mirror is disposed a given distance from the Faraday rotator material.

21. An optical isolator according to claim 1 further comprising selection means for selecting a given angle of incidence of the light disposed on the input polarizer, the selection means configured to

select the optical pathway through the Faraday rotator material.

22. An optical isolator according to claim 21 wherein the selection means provide an adjusted length of the optical pathway from the given length of the optical pathway.

23. An optical isolator according to claim 22 wherein the adjusted length of the optical pathway comprises a chosen number of reflections through the Faraday rotator material.

24. An optical isolator according to claim 23 wherein the chosen number of reflections through the optical pathway for the adjusted length are equal to a given number of reflections through the optical pathway for the given length of the optical pathway.

25. An optical isolator according to claim 23 wherein the chosen number of reflections through the optical pathway for the adjusted length are greater

than a given number of reflections through he optical pathway for the given length of the optical pathway.

26. An optical isolator according to claim 1 wherein the light blocked in the second direction has an isolation of greater than 50 dB.

27. An optical isolator according to claim 1 further comprising at least one additional polarizer disposed in the optical pathway between the input polarizer and the output polarizer.

28. An optical isolator according to claim 27 wherein the at least one additional polarizer comprises at least one additional reflector configured to redirect the optical pathway.

29. A method of optically isolating light by allowing transmission of the light in a first direction along an optical pathway through an optical isolator and blocking transmission of the light in a second direction along a second direction through the

optical isolator, and the first direction and the second direction being in opposition to one another; the method comprising:

initially polarizing the light with an input polarizer, the light being polarized at a first given plane of polarization parallel to a first given angle;

transmitting the initially polarized light along an optical pathway through a Faraday rotator material having a magnetic field applied thereto so as to rotate the initially polarized light from the first given angle to an intermediate angle;

reflecting the polarized light to provide a given number of passes through a portion of the Faraday rotator material so as to further rotate the polarized light from the intermediate angle to a second given plane of polarization parallel to a second given angle; and

passing the polarized light at the second given plane of polarization parallel to the second given angle through an output polarizer;

wherein the polarized light is reflected along the optical pathway between the input polarizer and

the output polarizer so as to provide an appropriate length of the optical pathway with a reduced length of the Faraday rotator material.

30. A method of optically isolating light, the method comprising:

providing an optical isolator for transmitting light in a first direction along an optical pathway therethrough and blocking the light in a second direction along the optical pathway, and the first direction and the second direction being in opposition to one another, the optical isolator comprising:

an input polarizer and an output polarizer, the input polarizer having a first pass axis of a first given angle, the output polarizer having a second pass axis of a second given angle, the input polarizer configured to polarize the light entering into the optical pathway to a first given plane of polarization parallel to the first given angle;

a Faraday rotator material disposed between the input polarizer and the output polarizer, the Faraday rotator material having a given Verdet

constant, a first end and a second end in opposition to one another, the first end and the second end disposed at a maximum linear distance across the Faraday rotator material from one another, and the first end and the second end defining an axis therebetween defining a maximum linear length through the Faraday rotator material;

generation means for generating a magnetic field around the Faraday rotator material, the generation means providing a given magnetic field strength; and

at least one reflector configured along the optical pathway from the input polarizer to the ouput polarizer, the at least one reflector defining a given optical length of the optical pathway through the Faraday rotator material, and the given optical length through the Faraday rotator material being longer than the maximum linear distance across the Faraday rotator material;

wherein the given length of the optical pathway through the Faraday rotator material provided by the at least one reflector, the given magnetic

field strength provided by the generation means, and the Verdet constant of the Faraday rotator material are selected with respect to one another so as to rotate the light along the given length of the optical pathway through the Faraday rotator material from the first given angle of the input polarizer to the second given angle of the output polarizer;

polarizing the light entering the input polarizer to the first given angle;

rotating the polarized light from the first given angle to the second given angle through the Faraday rotator material; and

passing the polarized light from the Faraday rotator material through the output polarizer so as to prevent reflected light from transmission through the input polarizer due to a non-reciprocal rotation of the light in the second direction through the Faraday rotator material so as to allow the input polarizer to block the reflected light.